

WHAT IS CLAIMED IS:

1. An iontophoresis-based medical device comprising a positive electrode section capable of retaining a drug solution, a negative electrode section capable of retaining a solution,

a power source supplying an electric current to said positive electrode section and negative electrode section, and a controller controlling the value and electric conduction time of the current supplied from the power source,

which allows the drug solution to permeate into a lesion based on ionphoresis obtained by conducting current between said positive electrode section and negative electrode section, wherein

said positive electrode section and negative electrode section are respectively given a handleable stick shape,

said positive electrode section is provided with a drug solution retainer which retains said drug solution and contacts with a lesion, and

said negative electrode section is provided with a solution retainer which retains said solution and contacts with a part of the body in the vicinity of the lesion.

2. The iontophoresis-based medical device according to Claim 1 wherein said drug solution retainer is provided with

a mouth piece provided at the tip end of the stick in an attachable and detachable manner and a brush fixed on the mouth piece, and said solution retainer is provided with a cylindrical head provided at the tip end of the stick and a sponge provided at the cylindrical head in an attachable and detachable manner.

3. The iontophoresis-based medical device according to Claim 1 wherein said controller is able to set the current value, voltage value and electric conduction time for said conduction in response to type of the target viscous membrane, thickness of the target skin and area of the target skin at said lesion.

4. The iontophoresis-based medical device according to Claim 1 having an alarm indicating the progress of said electric conduction time set by said controller.

5. The iontophoresis-based medical device according to Claim 1 wherein a main ingredient of said drug solution is a cationic surface active agent or an amphoteric surface active agent.

6. The iontophoresis-based medical device according to Claim 2 wherein a 1 to 3% sodium chloride solution is impregnated into said sponge.

7. The iontophoresis-based medical device according to Claim 1 wherein said lesion is an oral lesion such as periodontal tissue, teeth, dental pulp or root canal or a superficial lesion

on the body.

8. The iontophoresis-based medical device according to Claim 7 wherein said current value is  $40\mu\text{A}$  or lower and the electric conduction time is 8 to 30 seconds when said lesion is an oral lesion in humans.

9. A method for sterilizing and disinfecting body tissues by using iontophoresis wherein a drug solution retained by a positive electrode section is allowed to come into contact with an oral lesion in body tissues and a solution retained by a negative electrode section is allowed to come into contact with the vicinity of said lesion, thereby providing an electric closed circuit between these electrode sections and the lesion to conduct a current of  $40\mu\text{A}$  or lower into the closed circuit for 8 to 30 seconds.

10. The method for sterilizing and disinfecting body tissues by using iontophoresis according to Claim 9 wherein a main ingredient of said drug solution is a cationic surface active agent or an amphoteric surface active agent.

11. The method for sterilizing and disinfecting body tissues by using iontophoresis according to Claim 9 wherein said solution is sodium chloride solution.

12. A method for sterilizing and disinfecting body tissues by using iontophoresis wherein a drug solution retained by a

positive electrode section is allowed to come into contact with a superficial lesion of a human body or small animals and a solution retained in a negative electrode section is allowed to come into contact with the vicinity of said lesion, thereby providing an closed electric circuit between these electrode sections and the lesion to conduct a current of 0.2 to 0.5mA into the closed circuit for a predetermined time.

13. The method for sterilizing and disinfecting body tissues by using iontophoresis according to Claim 12 wherein current value, voltage value and electric conduction time for said electric conduction are set in response to thickness and area of the target skin at said lesion.